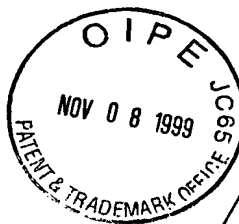


SEQUENCE LISTING

<110> BUMOL, Thomas Frank
 DOU, Shenshen
 GLASEBROOK, Andrew Lawrence
 GOULD, Kenneth Elliot
 HALE, John Edward
 HEUER, Josef Georg
 HUI, Kwan Yuk
 KHARITONENKOV, Alexei
 MIZRAHI, Jacques
 NA, Songqing
 NOBLITT, Timothy Wayne
 REIDY, Charles Arthur
 SONG, Ho Yeong
 WANG, Jian
 WU, Xiyang
 ZUCKERMAN, Steven Harold



<120> THERAPEUTIC APPLICATIONS OF mFLINT POLYPEPTIDES

<130> 040902/0136

<140> US 09/280,567

<141> 1999-03-30

<150> US 60/113,407

<151> 1998-12-22

<150> US 60/112,933

<151> 1998-12-18

<150> US 60/112,703

<151> 1998-12-18

<150> US 60/112,577

<151> 1998-12-17

<150> US 60/099,643

<151> 1998-09-09

<150> US 60/086,074

<151> 1998-05-20

<150> US 60/079,856

<151> 1998-03-30

<160> 13

<170> PatentIn Ver. 2.0

<210> 1

<211> 900

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(900)

<400> 1

atg agg gcg ctg gag ggg cca ggc ctg tcg ctg ctg tgc ctg gtg ttg 48
 Met Arg Ala Leu Glu Gly Pro Gly Leu Ser Leu Leu Cys Leu Val Leu
 1 5 10 15

gcg ctg cct gcc ctg ctg ccg gtg ccg gct gta cgc gga gtg gca gaa 96
Ala Leu Pro Ala Leu Leu Pro Val Pro Ala Val Arg Gly Val Ala Glu
20 25 30

aca ccc acc tac ccc tgg ccg gac gca gag aca ggg gag cgg ctg gtg 144
Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu Arg Leu Val
35 40 45

tgc gcc cag tgc ccc cca ggc acc ttt gtg cag cgg ccg tgc cgc cga 192
Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro Cys Arg Arg
50 55 60

gac agc ccc acg acg tgt ggc ccg tgt cca ccg cgc cac tac acg cag 240
Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His Tyr Thr Gln
65 70 75 80

ttc tgg aac tac ctg gag cgc tgc cgc tac tgc aac gtc ctc tgc ggg 288
Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val Leu Cys Gly
85 90 95

gag cgt gag gag gag gca cgg gct tgc cac gcc acc cac aac cgt gcc 336
Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His Asn Arg Ala
100 105 110

tgc cgc tgc cgc acc ggc ttc ttc gcg cac gct ggt ttc tgc ttg gag 384
Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe Cys Leu Glu
115 120 125

cac gca tcg tgt cca cct ggt gcc gcc gtg att gcc ccg gcc acc ccc 432
His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro Gly Thr Pro
130 135 140

agc cag aac acg cag tgc cag ccg tgc ccc cca gcc acc ttc tca gcc 480
Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr Phe Ser Ala
145 150 155 160

agc agc tcc agc tca gag cag tgc cag ccc cac cgc aac tgc acg gcc 528
Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn Cys Thr Ala
165 170 175

ctg ggc ctg gcc ctc aat gtg cca ggc tct tcc tcc cat gac acc ctg 576
Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His Asp Thr Leu
180 185 190

tgc acc agc tgc act ggc ttc ccc ctc agc acc agg gta cca gga gct 624
Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val Pro Gly Ala
195 200 205

gag gag tgt gag cgt gcc gtc atc gac ttt gtg gct ttc cag gac atc 672
Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe Gln Asp Ile
210 215 220

tcc atc aag agg ctg cag cgg ctg ctg cag gcc ctc gag gcc ccg gag 720
Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu Ala Pro Glu
225 230 235 240

ggc tgg ggt ccg aca cca agg gcg ggc cgc gcg gcc ttg cag ctg aag 768
Gly Trp Gly Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu Gln Leu Lys
245 250 255

ctg cgt cgg cgg ctc acg gag ctc ctg ggg gcg cag gac ggg gcg ctg 816
Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp Gly Ala Leu
260 265 270

ctg gtg cgg ctg ctg cag gcg ctg cgc gtg gcc agg atg ccc ggg ctg 864
 Leu Val Arg Leu Leu Gln Ala Leu Arg Val Ala Arg Met Pro Gly Leu
 275 280 285

gag cgg agc gtc cgt gag cgc ttc ctc cct gtg cac 900
 Glu Arg Ser Val Arg Glu Arg Phe Leu Pro Val His
 290 295 300

<210> 2
 <211> 300
 <212> PRT
 <213> Homo sapiens

<400> 2
 Met Arg Ala Leu Glu Gly Pro Gly Leu Ser Leu Leu Cys Leu Val Leu
 1 5 10 15
 Ala Leu Pro Ala Leu Leu Pro Val Pro Ala Val Arg Gly Val Ala Glu
 20 25 30
 Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu Arg Leu Val
 35 40 45
 Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro Cys Arg Arg
 50 55 60
 Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His Tyr Thr Gln
 65 70 75 80
 Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val Leu Cys Gly
 85 90 95
 Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His Asn Arg Ala
 100 105 110
 Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe Cys Leu Glu
 115 120 125
 His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro Gly Thr Pro
 130 135 140
 Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr Phe Ser Ala
 145 150 155 160
 Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn Cys Thr Ala
 165 170 175
 Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His Asp Thr Leu
 180 185 190
 Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val Pro Gly Ala
 195 200 205
 Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe Gln Asp Ile
 210 215 220
 Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu Ala Pro Glu
 225 230 235 240
 Gly Trp Gly Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu Gln Leu Lys
 245 250 255

Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp Gly Ala Leu
260 265 270

Leu Val Arg Leu Leu Gln Ala Leu Arg Val Ala Arg Met Pro Gly Leu
275 280 285

Glu Arg Ser Val Arg Glu Arg Phe Leu Pro Val His
290 295 300

<210> 3
<211> 936
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (25)..(924)

<400> 3
gctctccctg ctccagcaag gacc atg agg gcg ctg gag ggg cca ggc ctg 51
Met Arg Ala Leu Glu Gly Pro Gly Leu
1 5

tcg ctg ctg tgc ctg gtg ttg gcg ctg cct gcc ctg ctg ccg gtg ccg 99
Ser Leu Leu Cys Leu Val Leu Ala Leu Pro Ala Leu Leu Pro Val Pro
10 15 20 25

gct gta cgc gga gtg gca gaa aca ccc acc tac ccc tgg cgg gac gca 147
Ala Val Arg Gly Val Ala Glu Thr Pro Thr Tyr Pro Trp Arg Asp Ala
30 35 40

gag aca ggg gag cgg ctg gtg tgc gcc cag tgc ccc cca ggc acc ttt 195
Glu Thr Gly Glu Arg Leu Val Cys Ala Gln Cys Pro Pro Gly Thr Phe
45 50 55

gtg cag cgg ccg tgc cgc cga gac agc ccc acg acg tgt ggc ccg tgt 243
Val Gln Arg Pro Cys Arg Arg Asp Ser Pro Thr Thr Cys Gly Pro Cys
60 65 70

cca ccg cgc cac tac acg cag ttc tgg aac tac ctg gag cgc tgc cgc 291
Pro Pro Arg His Tyr Thr Gln Phe Trp Asn Tyr Leu Glu Arg Cys Arg
75 80 85

tac tgc aac gtc ctc tgc ggg gag cgt gag gag gag gca cgg gct tgc 339
Tyr Cys Asn Val Leu Cys Gly Glu Arg Glu Glu Glu Ala Arg Ala Cys
90 95 100 105

cac gcc acc cac aac cgt gcc tgc cgc tgc cgc acc ggc ttc ttc gcg 387
His Ala Thr His Asn Arg Ala Cys Arg Cys Arg Thr Gly Phe Phe Ala
110 115 120

cac gct ggt ttc tgc ttg gag cac gca tcg tgt cca cct ggt gcc ggc 435
His Ala Gly Phe Cys Leu Glu His Ala Ser Cys Pro Pro Gly Ala Gly
125 130 135

gtg att gcc ccg ggc acc ccc agc cag aac acg cag tgc cag ccg tgc 483
Val Ile Ala Pro Gly Thr Pro Ser Gln Asn Thr Gln Cys Gln Pro Cys
140 145 150

ccc cca ggc acc ttc tca gcc agc agc tcc agc tca gag cag tgc cag 531
Pro Pro Gly Thr Phe Ser Ala Ser Ser Ser Ser Glu Gln Cys Gln
155 160 165

ccc cac cgc aac tgc acg gcc ctg ggc ctg gcc ctc att gtg cca ggc 579
 Pro His Arg Asn Cys Thr Ala Leu Gly Leu Ala Leu Ile Val Pro Gly 185
 170 175 180
 tct tcc tcc cat gac acc ctg tgc acc agc tgc act ggc ttc ccc ctc 627
 Ser Ser Ser His Asp Thr Leu Cys Thr Ser Cys Thr Gly Phe Pro Leu 200
 190 195
 agc acc agg gta cca gga gct gag gag tgt gag cgt gcc gtc atc gac 675
 Ser Thr Arg Val Pro Gly Ala Glu Glu Cys Glu Arg Ala Val Ile Asp 215
 205 210
 ttt gtg gct ttc cag gac atc tcc atc aag agg ctg cag cgg ctg ctg 723
 Phe Val Ala Phe Gln Asp Ile Ser Ile Lys Arg Leu Gln Arg Leu Leu 230
 220 225
 cag gcc ctc gag gcc ccg gag ggc tgg gct ccg aca cca agg gcg ggc 771
 Gln Ala Leu Glu Ala Pro Glu Gly Trp Ala Pro Thr Pro Arg Ala Gly 245
 235 240
 cgc gcg gcc ttg cag ctg aag ctg cgt cgg cgg ctc acg gag ctc ctg 819
 Arg Ala Ala Leu Gln Leu Lys Leu Arg Arg Arg Leu Thr Glu Leu Leu 265
 250 255 260
 ggg gcg cag gac ggg gcg ctg ctg gtg cgg ctg ctg cag gcg ctg cgc 867
 Gly Ala Gln Asp Gly Ala Leu Leu Val Arg Leu Leu Gln Ala Leu Arg 280
 270 275
 gtg gcc agg atg ccc ggg ctg gag cgg agc gtc cgt gag cgc ttc ctc 915
 Val Ala Arg Met Pro Gly Leu Glu Arg Ser Val Arg Glu Arg Phe Leu 295
 285 290 295
 cct gtg cac tgatcctggc cc 936
 Pro Val His 300

<210> 4
 <211> 300
 <212> PRT
 <213> Homo sapiens

<400> 4
 Met Arg Ala Leu Glu Gly Pro Gly Leu Ser Leu Leu Cys Leu Val Leu
 1 5 10 15
 Ala Leu Pro Ala Leu Leu Pro Val Pro Ala Val Arg Gly Val Ala Glu
 20 25 30
 Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu Arg Leu Val
 35 40 45
 Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro Cys Arg Arg
 50 55 60
 Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His Tyr Thr Gln
 65 70 75 80
 Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val Leu Cys Gly
 85 90 95
 Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His Asn Arg Ala
 100 105 110

Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe Cys Leu Glu
 115 120 125
 His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro Gly Thr Pro
 130 135 140
 Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr Phe Ser Ala
 145 150 155 160
 Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn Cys Thr Ala
 165 170 175
 Leu Gly Leu Ala Leu Ile Val Pro Gly Ser Ser Ser His Asp Thr Leu
 180 185 190
 Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val Pro Gly Ala
 195 200 205
 Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe Gln Asp Ile
 210 215 220
 Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu Ala Pro Glu
 225 230 235 240
 Gly Trp Ala Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu Gln Leu Lys
 245 250 255
 Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp Gly Ala Leu
 260 265 270
 Leu Val Arg Leu Leu Gln Ala Leu Arg Val Ala Arg Met Pro Gly Leu
 275 280 285
 Glu Arg Ser Val Arg Glu Arg Phe Leu Pro Val His
 290 295 300

<210> 5
 <211> 813
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1) .. (813)

<400> 5
 gtg gca gaa aca ccc acc tac ccc tgg cgg gac gca gag aca ggg gag 48
 Val Ala Glu Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu
 1 5 10 15
 cgg ctg gtg tgc gcc cag tgc ccc cca ggc acc ttt gtg cag cgg ccg 96
 Arg Leu Val Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro
 20 25 30
 tgc cgc cga gac agc ccc acg acg tgt ggc ccg tgt cca ccg cgc cac 144
 Cys Arg Arg Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His
 35 40 45
 tac acg cag ttc tgg aac tac ctg gag cgc tgc cgc tac tgc aac gtc 192
 Tyr Thr Gln Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val
 50 55 60

ctc tgc ggg gag cgt gag gag gag gca cgg gct tgc cac gcc acc cac 240
 Leu Cys Gly Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His
 65 70 75 80

aac cgt gcc tgc cgc tgc cgc acc ggc ttc ttc gcg cac gct ggt ttc 288
 Asn Arg Ala Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe
 85 90 95

tgc ttg gag cac gca tgc tgt cca cct ggt gcc ggc gtg att gcc ccg 336
 Cys Leu Glu His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro
 100 105 110

ggc acc ccc agc cag aac acg cag tgc cag ccg tgc ccc cca ggc acc 384
 Gly Thr Pro Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr
 115 120 125

ttc tca gcc agc agc tcc agc tca gag cag tgc cag ccc cac cgc aac 432
 Phe Ser Ala Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn
 130 135 140

tgc acg gcc ctg ggc ctg gcc ctc aat gtg cca ggc tct tcc tcc cat 480
 Cys Thr Ala Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His
 145 150 155 160

gac acc ctg tgc acc agc tgc act ggc ttc ccc ctc agc acc agg gta 528
 Asp Thr Leu Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val
 165 170 175

cca gga gct gag gag tgt gag cgt gcc gtc atc gac ttt gtg gct ttc 576
 Pro Gly Ala Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe
 180 185 190

cag gac atc tcc atc aag agg ctg cag cgg ctg ctg cag gcc ctc gag 624
 Gln Asp Ile Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu
 195 200 205

gcc ccg gag ggc tgg ggt ccg aca cca agg gcg ggc cgc gcg gcc ttg 672
 Ala Pro Glu Gly Trp Gly Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu
 210 215 220

cag ctg aag ctg cgt cgg cgg ctc acg gag ctc ctg ggg gcg cag gac 720
 Gln Leu Lys Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp
 225 230 235 240

ggg gcg ctg ctg gtg cgg ctg ctg cag gcg ctg cgc gtg gcc agg atg 768
 Gly Ala Leu Leu Val Arg Leu Leu Gln Ala Leu Arg Val Ala Arg Met
 245 250 255

ccc ggg ctg gag cgg agc gtc cgt gag cgc ttc ctc cct gtg cac 813
 Pro Gly Leu Glu Arg Ser Val Arg Glu Arg Phe Leu Pro Val His
 260 265 270

<210> 6
 <211> 271
 <212> PRT
 <213> Homo sapiens

<400> 6
 Val Ala Glu Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu
 1 5 10 15

Arg Leu Val Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro
 20 25 30

Cys Arg Arg Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His
 35 40 45
 Tyr Thr Gln Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val
 50 55 60
 Leu Cys Gly Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His
 65 70 75 80
 Asn Arg Ala Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe
 85 90 95
 Cys Leu Glu His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro
 100 105 110
 Gly Thr Pro Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr
 115 120 125
 Phe Ser Ala Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn
 130 135 140
 Cys Thr Ala Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His
 145 150 155 160
 Asp Thr Leu Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val
 165 170 175
 Pro Gly Ala Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe
 180 185 190
 Gln Asp Ile Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu
 195 200 205
 Ala Pro Glu Gly Trp Gly Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu
 210 215 220
 Gln Leu Lys Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp
 225 230 235 240
 Gly Ala Leu Leu Val Arg Leu Leu Gln Ala Leu Arg Val Ala Arg Met
 245 250 255
 Pro Gly Leu Glu Arg Ser Val Arg Glu Arg Phe Leu Pro Val His
 260 265 270

<210> 7
 <211> 825
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)..(813)

<400> 7
 gtg gca gaa aca ccc acc tac ccc tgg cgg gac gca gag aca ggg gag 48
 Val Ala Glu Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu
 1 5 10 15
 cgg ctg gtg tgc gcc cag tgc ccc cca ggc acc ttt gtg cag cgg ccg 96
 Arg Leu Val Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro
 20 25 30

tgc cgc cga gac agc ccc acg acg tgt ggc ccg tgt cca ccg cgc cac 144
 Cys Arg Arg Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His
 35 40 45
 tac acg cag ttc tgg aac tac ctg gag cgc tgc cgc tac tgc aac gtc 192
 Tyr Thr Gln Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val
 50 55 60
 ctc tgc ggg gag cgt gag gag gag gca cgg gct tgc cac gcc acc cac 240
 Leu Cys Gly Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His
 65 70 75 80
 aac cgt gcc tgc cgc tgc cgc acc ggc ttc ttc gcg cac gct ggt ttc 288
 Asn Arg Ala Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe
 85 90 95
 tgc ttg gag cac gca tgc tgt cca cct ggt gcc gcc gtg att gcc ccg 336
 Cys Leu Glu His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro
 100 105 110
 ggc acc ccc agc cag aac acg cag tgc cag ccg tgc ccc cca gcc acc 384
 Gly Thr Pro Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr
 115 120 125
 ttc tca gcc agc agc tcc agc tca gag cag tgc cag ccc cac cgc aac 432
 Phe Ser Ala Ser Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn
 130 135 140
 tgc acg gcc ctg ggc ctg gcc ctc aat gtg cca gcc tct tcc tcc cat 480
 Cys Thr Ala Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His
 145 150 155 160
 gac acc ctg tgc acc agc tgc act ggc ttc ccc ctc agc acc agg gta 528
 Asp Thr Leu Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val
 165 170 175
 cca gga gct gag gag tgt gag cgt gcc gtc atc gac ttt gtg gct ttc 576
 Pro Gly Ala Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe
 180 185 190
 cag gac atc tcc atc aag agg ctg cag ccg ctg ctg cag gcc ctc gag 624
 Gln Asp Ile Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu
 195 200 205
 gcc ccg gag ggc tgg gct ccg aca cca agg gcg gcc cgc gcg gcc ttg 672
 Ala Pro Glu Gly Trp Ala Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu
 210 215 220
 cag ctg aag ctg cgt ccg ccg ctc acg gag ctc ctg ggg gcg cag gac 720
 Gln Leu Lys Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp
 225 230 235 240
 ggg gcg ctg ctg gtg ccg ctg ctg cag gcg ctg cgc gtg gcc agg atg 768
 Gly Ala Leu Leu Val Arg Leu Leu Gln Ala Leu Arg Val Ala Arg Met
 245 250 255
 gcc ggg ctg gag ccg agc gtc cgt gag cgc ttc ctc cct gtg cac 813
 Pro Gly Leu Glu Arg Ser Val Arg Glu Arg Phe Leu Pro Val His
 260 265 270
 tgatcctggc cc 825

Sub
 B1

<210> 8
<211> 271
<212> PRT
<213> Homo sapiens

<400> 8

Val Ala Glu Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu
1 5 10 15
Arg Leu Val Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro
20 25 30
Cys Arg Arg Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His
35 40 45
Tyr Thr Gln Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val
50 55 60
Leu Cys Gly Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His
65 70 75 80
Asn Arg Ala Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe
85 90 95
Cys Leu Glu His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro
100 105 110
Gly Thr Pro Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr
115 120 125
Phe Ser Ala Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn
130 135 140
Cys Thr Ala Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His
145 150 155 160
Asp Thr Leu Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val
165 170 175
Pro Gly Ala Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe
180 185 190
Gln Asp Ile Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu
195 200 205
Ala Pro Glu Gly Trp Ala Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu
210 215 220
Gln Leu Lys Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp
225 230 235 240
Gly Ala Leu Leu Val Arg Leu Leu Gln Ala Leu Arg Val Ala Arg Met
245 250 255
Pro Gly Leu Glu Arg Ser Val Arg Glu Arg Phe Leu Pro Val His
260 265 270

<210> 9
<211> 8
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Polypeptide

<400> 9

Asp Tyr Lys Asp Asp Asp Lys
1 5

<210> 10

<211> 59

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 10

tagggctgat caaggatggg cttctggact tgggaggccc ctccgcaggc ggaccgggg 59

<210> 11

<211> 66

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 11

aggggggcgg ccgctgatca tcacttgctg tcgtcgtcct tgtagtcgtg cacagggagg 60

aagcgc

66

<210> 12

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 12

gaagatcttc tttgatcaag gatgggcttc tggactt

37

<210> 13

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 13

ggactagtcc tgatcatcac ttgtcgtcgt cgtcctt

37

FIG. 2

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gct | ctc | ctg | ctcc | gca | gacc | atg | agg | gcg | ctg | gag | ggg | cca | ggc | ctg | 51 | |
| | | | | | | Met | Arg | Ala | Leu | Glu | Gly | Pro | Gly | Leu | | |
| | | | | | | 1 | | | | 5 | | | | | | |
| tcg | ctg | ctg | tgc | ctg | gtg | ttg | gcg | ctg | cct | gcc | ctg | ctg | ccg | gtg | ccg | 99 |
| Ser | Leu | Leu | Cys | Leu | Val | Leu | Ala | Leu | Pro | Ala | Leu | Leu | Pro | Val | Pro | |
| 10 | | | | | 15 | | | | | 20 | | | | | 25 | |
| gct | gta | cgc | gga | gtg | gca | gaa | aca | ccc | acc | tac | ccc | tgg | cgg | gac | gca | 147 |
| Ala | Val | Arg | Gly | Val | Ala | Glu | Thr | Pro | Thr | Tyr | Pro | Trp | Arg | Asp | Ala | |
| | | | | 30 | | | | | 35 | | | | | 40 | | |
| gag | aca | ggg | gag | cgg | ctg | gtg | tgc | gcc | cag | tgc | ccc | cca | ggc | acc | ttt | 195 |
| Glu | Thr | Gly | Glu | Arg | Leu | Val | Cys | Ala | Gln | Cys | Pro | Pro | Gly | Thr | Phe | |
| | | | 45 | | | | | 50 | | | | | 55 | | | |
| gtg | cag | cgg | ccg | tgc | cgc | cga | gac | agc | ccc | acg | acg | tgt | ggc | ccg | tgt | 243 |
| Val | Gln | Arg | Pro | Cys | Arg | Arg | Asp | Ser | Pro | Thr | Thr | Cys | Gly | Pro | Cys | |
| | | 60 | | | | | 65 | | | | | 70 | | | | |
| cca | ccg | cgc | cac | tac | acg | cag | ttc | tgg | aac | tac | ctg | gag | cgc | tgc | cgc | 291 |
| Pro | Pro | Arg | His | Tyr | Thr | Gln | Phe | Trp | Asn | Tyr | Leu | Glu | Arg | Cys | Arg | |
| | 75 | | | | | 80 | | | | | 85 | | | | | |
| tac | tgc | aac | gtc | ctc | tgc | ggg | gag | cgt | gag | gag | gag | gca | cgg | gct | tgc | 339 |
| Tyr | Cys | Asn | Val | Leu | Cys | Gly | Glu | Arg | Glu | Glu | Glu | Ala | Arg | Ala | Cys | |
| 90 | | | | | 95 | | | | 100 | | | | | 105 | | |
| cac | gcc | acc | cac | aac | cgt | gcc | tgc | cgc | tgc | cgc | acc | ggc | ttc | ttc | gcg | 387 |
| His | Ala | Thr | His | Asn | Arg | Ala | Cys | Arg | Cys | Arg | Thr | Gly | Phe | Phe | Ala | |
| | | | | 110 | | | | | 115 | | | | | 120 | | |
| cac | gct | ggg | ttc | tgc | ttg | gag | cac | gca | tgc | tgt | cca | cct | ggg | gcc | ggc | 435 |
| His | Ala | Gly | Phe | Cys | Leu | Glu | His | Ala | Ser | Cys | Pro | Pro | Gly | Ala | Gly | |
| | | | 125 | | | | | 130 | | | | | 135 | | | |
| gtg | att | gcc | ccg | ggc | acc | ccc | agc | cag | aac | acg | cag | tgc | cag | ccg | tgc | 483 |
| Val | Ile | Ala | Pro | Gly | Thr | Pro | Ser | Gln | Asn | Thr | Gln | Cys | Gln | Pro | Cys | |
| | | 140 | | | | | 145 | | | | | 150 | | | | |
| ccc | cca | ggc | acc | ttc | tca | gcc | agc | agc | tcc | agc | tca | gag | cag | tgc | cag | 531 |
| Pro | Pro | Gly | Thr | Phe | Ser | Ala | Ser | Ser | Ser | Ser | Ser | Glu | Gln | Cys | Gln | |
| | 155 | | | | | 160 | | | | | 165 | | | | | |
| ccc | cac | cgc | aac | tgc | acg | gcc | ctg | ggc | ctg | gcc | ctc | att | gtg | cca | ggc | 579 |
| Pro | His | Arg | Asn | Cys | Thr | Ala | Leu | Gly | Leu | Ala | Leu | Ile | Val | Pro | Gly | |
| 170 | | | | 175 | | | | | 180 | | | | | | 185 | |
| tct | tcc | tcc | cat | gac | acc | ctg | tgc | acc | agc | tgc | act | ggc | ttc | ccc | ctc | 627 |
| Ser | Ser | Ser | His | Asp | Thr | Leu | Cys | Thr | Ser | Cys | Thr | Gly | Phe | Pro | Leu | |
| | | | 190 | | | | | | 195 | | | | | | | |

G1 CONT.

2/2

FIG. 2 (cont'd.)

| | |
|---|-----|
| cag gcc ctc gag gcc ccg gag ggc tgg gct ccg aca cca agg gcg ggc | 771 |
| Gln Ala Leu Glu Ala Pro Glu Gly Trp Ala Pro Thr Pro Arg Ala Gly | |
| 235 240 245 | |
| cgc gcg gcc ttg cag ctg aag ctg cgt ccg ccg ctc acg gag ctc ctg | 819 |
| Arg Ala Ala Leu Gln Leu Lys Leu Arg Arg Arg Leu Thr Glu Leu Leu | |
| 250 255 260 265 | |
| ggg gcg cag gac ggg gcg ctg ctg gtg ccg ctg ctg cag gcg ctg cgc | 867 |
| Gly Ala Gln Asp Gly Ala Leu Leu Val Arg Leu Leu Gln Ala Leu Arg | |
| 270 275 280 | |
| gtg gcc agg atg ccc ggg ctg gag ccg agc gtc cgt gag cgc ttc ctc | 915 |
| Val Ala Arg Met Pro Gly Leu Glu Arg Ser Val Arg Glu Arg Phe Leu | |
| 285 290 295 | |
| cct gtg cac tgatcctggc cc | 936 |
| Pro Val His | |
| 300 | |

1/2

FIG. 4

gtg gca gaa aca ccc acc tac ccc tgg cgg gac gca gag aca ggg gag 48
 Val Ala Glu Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu
 1 5 10 15
 cgg ctg gtg tgc gcc cag tgc ccc cca ggc acc ttt gtg cag cgg ccg 96
 Arg Leu Val Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro
 20 25 30
 tgc cgc cga gac agc ccc acg acg tgt ggc ccg tgt cca ccg cgc cac 144
 Cys Arg Arg Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His
 35 40 45
 tac acg cag ttc tgg aac tac ctg gag cgc tgc cgc tac tgc aac gtc 192
 Tyr Thr Gln Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val
 50 55 60
 ctc tgc ggg gag cgt gag gag gag gca cgg gct tgc cac gcc acc cac 240
 Leu Cys Gly Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His
 65 70 75 80
 aac cgt gcc tgc cgc tgc cgc acc ggc ttc ttc gcg cac gct ggt ttc 288
 Asn Arg Ala Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe
 85 90 95
 tgc ttg gag cac gca tgc tgt cca cct gct gcc ggc gtg att gcc ccg 336
 Cys Leu Glu His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro
 100 105 110
 ggc acc ccc agc cag aac acg cag tgc cag ccg tgc ccc cca ggc acc 384
 Gly Thr Pro Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr
 115 120 125
 ttc tca gcc agc agc tcc agc tca gag cag tgc cag ccc cac cgc aac 432
 Phe Ser Ala Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn
 130 135 140
 tgc acg gcc ctg ggc ctg gcc ctc aat gtg cca ggc tct tcc tcc cat 480
 Cys Thr Ala Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His
 145 150 155 160
 gac acc ctg tgc acc agc tgc act ggc ttc ccc ctc agc acc agg gta 528
 Asp Thr Leu Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val
 165 170 175
 cca gga gct gag gag tgt gag cgt gcc gtc atc gac ttt gtg gct ttc 576
 Pro Gly Ala Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe
 180 185 190
 cag gac atc tcc atc aag agg ctg cag cgg ctg ctg cag gcc ctc gag 624
 Gln Asp Ile Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu
 195 200 205
 gcc ccg gag ggc tgg gct ccg aca cca agg gcg ggc cgc gcg gcc ttg 672
 Ala Pro Glu Gly Trp Ala Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu
 210 215 220
 cag ctg aag ctg cgt cgg cgg ctc acg gag ctc ctg ggg gcg cag gac 720
 Gln Leu Lys Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp
 225 230 235 240

ccc ggg ctg gag cgg agc gtc cgt gag cgc ttc ctc cct gtg cac 813
Pro Gly Leu Glu Arg Ser Val Arg Glu Arg Phe Leu Pro Val His
260 265 270

tgatcctggc cc 825

4